

Mr. Watson was said to have named the Rocky Mountain oak *Quercus polymorpha*. Mr. W. had simply adopted the earliest name for it, *Q. undulata* Torr.; also the reference of *Pinus contorta* to *P. Balfouriana* was wrong. It should be *P. aristata*, which name now gives place to the prior *P. Balfouriana*.

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NOVEMBER 18.

Mr. VAUX, Vice-President, in the chair.

Thirty-two members present.

The following papers were presented for publication:—

“On the Homologies and Origin of the Types of Molar Teeth in Mammalia Educabilia.” By E. D. Cope. “Contribution to the Ichthyology of Alaska.” By E. D. Cope.

Prof. COPE remarked that he had observed in the Rocky Mountain region circles of stones arranged by human hands, in countries not now inhabited by the Indians. One of these is in South-western Wyoming near South Bitter Creek, inside the horseshoe of the Mammoth Buttes. The locality is a very barren one, being a sage-brush plain of alkaline debris from the bad lands of the Bridger Formation. It is nine miles from the nearest spring, which is of indifferent quality, and being in a region where game is very scarce, could hardly be regarded as a camping-ground. The circle consists of three uninterrupted concentric rings close together, the hole having a diameter of about fifteen feet. The stones are of moderate size, composed of a dark silex, and evidently derived from the drift material brought down from the Uinta Mountains, which is found on the summits of the bad-land mesas. Five or six miles from this place was found a flint factory with numerous implements and cores.

Two other circles were observed, in Colorado, about one hundred miles east of Long's Peak, and about five miles from a spring in a well grassed country. They are probably similar in character to those described by Mr. Berthoud in the Proceedings of the Academy (1872-46), as having been seen by him on Crow Creek, Col. The circles are formed of a single row of stones each, are situated close together, and are partially overgrown with grass. They lie in low ground behind a line of flat-topped bluffs, and immediately opposite to a narrow gap or opening between two of them. No implements were found, and he could form no opinion as to their age. The locality is unsuitable for a camp, in consequence of the remoteness of wood and water. The country is not inhabited by Indians, the nearest, a temporary camp, for travelling Cheyennes, Sioux, etc., being forty miles distant.

PROF. COPE explained the scope of the paper read by him as follows: The types of molar teeth are considered to be four, viz., the simple conic or truncate (Haplodont); the sides of the crown vertically plicate (Ptychodont); the apex of the crown tuberculate (Bunodont); or plicate (Lophodont). The Bunodonts were regarded as either with opposite or alternate, or few or many tubercles. The Lophodonts were considered in respect to their superior and inferior teeth separately, and are divided into anisognathous, having the maxillary teeth developed more extensively than the mandibular, and isognathous, where the development of the molars in the two jaws is identical. With respect to the structure of the upper molars they are found to represent opposite and alternate tubercles, and are hence divided into Antiodont and Amœbodont series. To the former belong the *Selenodont* (Ruminant), *Tapirodont* (Tapir), and *Trichecodont* (Elephant) types; to the latter, the *Palæotheridont*, *Symborodont*, *Bathmodont*, and *Loxolophodont* types. The mandibular teeth are in like manner either antiodont or amœbodont. Of the former kind are *Selenodonts*, *Hyracodonts* (Rhinoceros), and *Trichecodonts* (Tapir, Elephant, Manatee, etc.); of the latter, *Symborodont* (Auchitherium, Palæotherium, Palæosyops), *Hippodonts* (Equus), and *Loxolophodont* (*Bathmodon*, *Eobasilus*) types belong. The *Ruminantia* are biserial in the essential constitution of the crests of the upper molars; the Proboscideans (including *Bathmodon* and *Eobasilus*) uniserial, that is, both series of tubercles uniting to form a simple pattern, while the Perissodactyles are intermediate in this respect, with the exception of the true horse, which is *Selenodont* above.

The genetic relations of the Lophodont teeth are believed to be to corresponding types of the Bunodonts, and connecting series from the typical forms of the latter to corresponding genera of the former are shown to exist in most cases, rendering the probability of descent very strong. It results that Bunodonts and Lophodonts form "homologous groups," and are therefore related genetically, as had been pointed out by the writer some years ago. The mandibular dental characters of the Eocene genera *Achænodon* and *Hypododus* are shown to conform to the antiodont and amœbodont types of the bunodont pattern respectively.

The types of extremity structure have nearly similar relations, but are much further reaching in application, each of the divisions *Artiodactyla*, *Proboscidea*, and *Perissodactyla* embracing both Bunodonts and Lophodonts. The probable or theoretical ancestral types of *Bathmodon* and *Eobasilus* are suggested, as well as that of the whole of the *Mammalia*—*Educabilia*, or *Gyrencephala*, including man. This is necessarily a pentadactyle plantigrade bunodont, probably isognathous, and with cerebral convolutions much reduced.